The effect of cost information on buyer-supplier negotiations in different power settings

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Abstract: We investigate the influence of cost information on buyer-supplier negotiations in different power settings. Based on exchange theory, we expect that buyers with detailed cost information and less power than their opponent may try to (re)gain control over their own outcomes by sharing information. The results of our experiment indicate that the performance disadvantage of less powerful buyers is less pronounced when the buyer has detailed cost information and that this result can be explained by the buyer's negotiation behavior.

Key words: Cost Information, Power, Buyer-Supplier Relations, Negotiation

1. Introduction

The academic accounting literature recurrently depicts Total Cost of Ownership (TCO) analysis as an important and useful tool for negotiation between buyers and suppliers (Ellram, 1995a & 1995b; Roodhooft, Hiel, Van den Abbeele & van Doveren, 2003; Roodhooft, Van den Abbeele & Peeters, 2005). The idea is that the refined cost and cost driver information resulting from a TCO analysis can be used to optimize and better coordinate the performance of activities across the supply chain. However, empirical evidence for the claim has yet to be provided. The objective of this study is therefore to assess to which extent TCO information can be useful in inter-firm cost management and resulting negotiations between buyers and suppliers.

Previous research has highlighted the importance of information sharing to the effectiveness of buyer–supplier relationships (Bensaou, 1999). However, due to the reluctance of people involved to share the information necessary for inter-firm cost minimization, firms may not realize all gains from buyer-supplier negotiations. Research is therefore needed to untangle the interplay between the need to share information to optimize the activities across the supply chain and the reluctance to share private information. Drake and Haka (2005) show that concerns about inequity can motivate a failure to share detailed accounting information and result in less efficient negotiation outcomes between buyers and suppliers. However, other factors influencing the usefulness of more refined cost information in buyer-supplier negotiations need to be identified.

One such important factor is the relative power of the negotiators. We investigate therefore the influence of TCO information on buyer-supplier negotiations in different power settings. We focus on power for two specific reasons. First, the relative power structure is almost always critical in the development of bargaining strategies and in evaluating likely outcomes. Second, we expect that the usefulness of TCO information for inter-firm negotiations will depend on the relative power of buyer and supplier.

Researching this topic is also important because purchasing professionals in many companies still need to demonstrate the contribution they make to their firm (Carr & Pearson, 1999). In addition, the supply side of companies has become increasingly important over the last few decades. Costs of purchased goods and

services represent the majority of total costs for most companies (Degraeve & Roodhooft, 2001). It is relevant for both powerful and less powerful purchasing firms to understand which negotiation approaches will contribute to market success and profitability (Janda & Seshardi, 2001).

The results of our experiment show that the performance disadvantage of less powerful buyers is less pronounced when the buyer has detailed cost information. Based on exchange theory, we expect that buyers with detailed cost information and less power than their opponent may try to (re)gain control over their own outcomes by sharing information and by creating an integrative bargaining situation. Detailed analyses of the bargaining behavior support this hypothesis: we find that bargaining behavior mediates the moderating effects of cost information on the power to individual profit relation.

The next section reviews the relevant literature and develops hypotheses. The experimental procedures are outlined in section three and the results are analyzed in section four. Section five includes discussion and suggestions for future research.

2. Literature review

2.1 Exchange models for negotiation

Economic models of negotiation assume rational action by all parties. If these economic models provided full accurate descriptions of negotiation outcomes, empirical research would be unnecessary: behavior could simply be deduced from theory. Recent research, however, indicates that negotiator behavior differs from the predictions of game-theoretic models. Building on behavioral decision making, research on two-party negotiations suggests that negotiators tend to (i) ignore the cognitions of others, (ii) be overconfident, (iii) escalate commitment, (iv) assume that outcomes are fixed-sum, and therefore overestimate the competitiveness of their negotiation, (v) overweight readily available information, and (vi) be highly affected by the way their negotiation is framed (for a review see Bazerman, Curhan, Moore & Valley, 2000). Evidence shows that, despite the existence of an agreement zone, deviations from rationality in individual decisions lead to disagreements and Pareto-inefficient agreements. Raiffa (1982) has argued that rational models are insufficient for either understanding or prescription and that advice to negotiators should depend

on an understanding of the actual decision process of the opponent, rather than assuming that the other party is fully rational. Behavioral decision models and research offers a set of adjustments to rational models.

Exchange models offer some perspective here. Exchange models generally describe bargaining and negotiation as a process characterized by information exchange, joint-problem solving and persuasion (Alexander, Schul & McCorkle, 1994). A majority of research on industrial negotiations is based on theoretical perspectives drawn from both social exchange theory (Thibaut & Kelley, 1959; Gergen, 1969; Druckman, 1977) and exchange theory (Homans, 1974; Bagozzi, 1978). In this framework, negotiation outcomes (e.g. level of buyer and/or seller satisfaction, profits, whether or no agreement is reached) are seen as a complex interaction of three constructs: namely negotiator characteristics, situational characteristics, and the characteristics of the negotiation process itself (Campbell, Graham, Jolibert & Meissner, 1988). In this view, negotiator characteristics and situational characteristics are seen as affecting both process-related behaviors and performance outcomes (Alexander et al., 1994).

In this study, we control for negotiator characteristics and focus on two situational characteristics. We test the influence of the availability of detailed cost information and the influence of the relative power structure of a buyer on the negotiation process and the resulting impact on the negotiation outcomes. First, we briefly discuss two basic types of negotiation behavior that may characterize the negotiation process. Then we discuss how cost information and power may influence the negotiation process and resulting outcomes.

2.2 The negotiation process

Distributive bargaining and problem solving are the two basic negotiation strategies that purchasing agents appear to pursue. Each strategy has a different role in the purchase process.

Distributive bargaining (aggressive or competitive bargaining) addresses the issue of how the available benefits are to be distributed between the two parties (Walton & McKersie's, 1966). More specifically, distributive bargaining is characterized by the use of zero-sum or “win-lose” tactics such as communicating implicit or explicit threats, making excessive demands, promises, positional commitments, and persuasive arguments (Pruitt & Lewis, 1975). Distributive tactics can be appropriate for issues that are equally valued

by both parties (i.e. distributive issues). However, it has been suggested that distributive tactics are counterproductive when they are inappropriately applied to integrative issues and that they set a confrontational tone to the negotiation (Lax & Sebenius, 1986).

Problem solving primarily involves discovering ways to increase the benefits available in the relationship (Walton & McKersie, 1966). In purchasing, bargaining is integrative to the extent that purchasing agents actively seek coordination with sellers to develop alternative purchasing arrangements that have the potential for reducing costs and/or increasing performance. The focus is on seeking an integrative solution that is achieved via open and accurate informational exchange, mutually concessionary behaviors, and mutual respect for individual goals (Campbell et al., 1988). In a coordinative context, the focal negotiator will seek to minimize the use of any deleterious influence tactics (e.g. threats) in the negotiation because of his/her desire for a mutually beneficial outcome (Dant & Schul, 1992). Coordinative behavior such as open and accurate exchange of information and option flexibility have been linked to integrative agreements when tradeoffs based on issue priorities are evident (Pruitt & Lewis, 1975).

2.3 Total cost of ownership and the concept of value chain analysis

Value chain analysis (VCA) is described as a technique that can play an important role in the management of supply chain relationships. This analysis was developed by Porter (1985), and in the accounting literature further developed by Shank (1989) and Shank and Govindarajan (1992 & 1993). VCA is used to analyze, coordinate and optimize linkages between activities in the value chain, by focusing on the interdependence between these activities. It facilitates the optimization and coordination of interdependent activities in the value chain, which may cross organizational boundaries (Dekker, 2003). Accounting information is an important constituent of VCA.

Porter's critique of what now are termed ‘traditional’ accounting systems refers to the inability of those systems to adequately support a VCA. Traditional management accounting practices are based on the internally oriented concept of value added, which hinders firms in taking advantage of the opportunities to coordinate interdependence in the value chain. The value added perspective focuses on (maximizing) the difference between the firm's purchasing costs and selling price. Thereby it ignores linkages in the wider

value chain, such as the causes of this purchasing price, the costs of activities related to the product, and the consequences of the product for the buyer's activities (Dekker, 2003).

Total cost of ownership (TCO) accounting systems account for costs that are caused by buying at a certain supplier, such as costs of ordering, delivery, quality and administration (Carr and Ittner, 1992). The TCO concept attempts thus to quantify all of the costs related to the purchase of a given quantity of products or services from a given supplier (Ellram, 1995a). The TCO approach received considerable attention during the last decade (for a review see Wouters, Anderson & Wynstra, 2005).

A clear understanding of the TCO is beneficial in many purchasing situations. The information derived from a TCO analysis provides decision makers with an objective and easily understood argument for supporting and motivating a variety of purchasing decisions. It can be used to compare and evaluate different suppliers or supply contracts. The data allow to quantify and communicate areas of non-performance and to guide supplier performance improvement efforts. It can also be used in negotiations with suppliers to identify areas requiring contractual performance improvement. Suppliers can be made aware of the extra costs they generate and of ways to improve their competitive position by reducing these costs at the buyer side (Ellram, 1995a & 1995b; Monczka, Trent, & Handfield, 2002; Roodhooft et al., 2003 & 2005). The cost (and cost driver) information resulting from the analysis can be used, as suggested by Porter (1985), to optimize and better coordinate the performance of activities across the supply chain. The possession of relevant information for the interactions places the buyer in a strong position to work with the seller in identifying and assessing alternative courses of action and, thus, increases the likelihood that problem-solving efforts will be effective. Therefore we expect that:

H1a: Buyers with TCO information will obtain a higher individual profit than buyers with more traditional cost information.

H1b: TCO information has a positive effect on a buyer’s use of problem solving techniques.

2.4 The relative power structure

Of all variables that have been identified as factors in negotiations, power is among the most important (De Dreu & Van Kleef, 2004). Especially power resulting from the availability of alternative negotiation partners is a core element in many negotiations (Giebels, De Dreu & Van de Vliert, 2000 & 2003). For instance, sellers who know of other buyers interested in their goods or services are able to exit the negotiation and continue the negotiations with someone else. Having an alternative negotiator at hand reduces their dependence on the other side and accordingly weakens the other party's power position (Thibaut & Kelley, 1959; Emerson, 1962). Empirical research indeed shows that negotiators with an attractive alternative feel less dependent and achieve higher personal outcomes than negotiators with a less attractive or no alternative option (Pinkley, Neale & Bennett, 1994). People with less power tend to have lower aspirations, demand less, make more concessions, and receive smaller outcomes than those with more power (for a review see Pruitt & Carnevale, 1993).

H2a: In an equal power setting buyers will obtain a higher individual profit than in an unequal power setting in which the buyer is dependent on the seller.

A buyer's relative power will affect his use of aggressive bargaining. As supplier competition increases, buyers can be expected to capitalize on the natural rivalry among suppliers to keep prices down and to promote product and service improvements. The buyer's use of aggressive bargaining tactics, many of which involve implicit or explicit threats (e.g. suggesting that the seller is in danger of losing the contract), should also be more credible when several suppliers are interested in the purchase contract. Compared to power balance, power differences lead to greater use of threats and punishments, making conflict escalation more likely (De Dreu, 1995; De Dreu, Giebels & Van De Vliert, 1998). The increased effectiveness of aggressive bargaining associated with high supplier competition should reduce the buyer's need to solve problems with any given supplier or group of suppliers, and the marginal benefits of doing so under these conditions often may not be worth the cost (Perdue & Summers, 1991). Consequently, we expect that:

H2b: Buyers in an equal power setting will use less problem solving techniques and more distributive bargaining techniques than buyers in an unequal power setting in which the buyer is dependent on the seller.

2.5 Interaction effect of power and cost information

As we expect that TCO information has a positive effect on buyer's use of integrative bargaining, while supplier competition (outside options) has a negative effect on buyer's use of integrative bargaining and a positive effect on buyer's use of distributive bargaining techniques, we can reasonably expect interaction effects of power and information on the bargaining process and outcomes. All the more, as information can be regarded as a form of power. After all relative power manifests itself not only through the market structure, but also through (private) information (Chatterjee & Ulvilla, 1982), whether that information concerns a party's own or that party's opponent's preferences, payoffs or alternatives.

Recent research indicates that power differences influence information search strategies during negotiation (Fiske, 1993; De Dreu & Van Kleef, 2004). Power not only influences strategic decisions involving demands and the use of threats during negotiation. It also drives the processing of information about other people (Fiske, 1993; Fiske & Depret, 1996). When people depend on others, they may try to (re)gain control over their own outcomes by paying close attention to those persons so as to accurately predict their intentions and behaviors.

Gelfand and Christakopoulou (1999) suggest that the interdependence can induce a person to be motivated to accurately predict other's needs, desires, and possible actions, akin to low power individuals. Several studies support this view. Erber and Fiske (1984) found that outcome dependency produced heightened attention to information that was inconsistent with someone's expectations about another person. Copeland (1994) has argued that individuals with a power disadvantage have higher impression motivation than individuals with a power advantage. The idea is that lower power individuals may seek situational control by managing positive impressions of themselves (Goodwin, Gubin, Fiske & Yzerbyt, 2000). De Dreu & Van Kleef (2004) showed that negotiators with less power ask more diagnostic than leading questions, and more belief-congruent than incongruent questions, when facing a competitive rather than cooperative partner. Their research suggests

that this result is caused by stronger accuracy and impression motivation among less powerful negotiators and that belief-congruent rather than incongruent questions produce more positive impressions during negotiations.

Therefore, we expect that buyers with TCO information and less power than their opponent may try to (re)gain control over their own outcomes by sharing information and by paying close attention to their opponent so as to accurately predict their intentions and behaviors. This way they create a more integrative bargaining situation than buyers with TCO information and an outside option, which are more prone to use an aggressive bargaining strategy. Buyers without TCO information will not be able to create this integrative bargaining situation as they lack the necessary information. Therefore, we expect that:

H3: The performance disadvantage of less powerful buyers is less pronounced when the buyer has detailed TCO information because they will use more integrative bargaining strategies and less distributive bargaining strategies than more powerful buyers (with TCO information).

3. Research method

3.1 Experimental design

The experiment uses a 2 (power: equal versus low) x 2 (detailed TCO information versus more traditional cost information) design. The first factor is the relative power between buyers and sellers. Relative power was manipulated through the availability of an outside option. In the case of two-sided exit options the written instructions of the buyer and the seller contained a short paragraph about the presence of an alternative negotiation partner. Buyers and sellers were equally powerful as they had an outside option that would generate a similar profit (namely an outside option of 1000 euro). This outside option is relatively unattractive as higher gains can be obtained in the game by reaching an agreement. In the condition without outside option for the buyer, buyers were given the standard negotiation task without exit options. These buyers had thus no outside option and were fully dependent on reaching an agreement with their partner to earn any money. If no agreement was reached they would earn nothing, while their partner earned an outside option of 1000 euro.

The second factor is the buyer's cost information. Buyers with TCO information had a payoff table with detailed cost information (TCO information). Buyers without TCO information only had an indication of the costs and the relative importance of each of the issues to be negotiated (cf. appendix A). They were informed on the fact that price was the most expensive issue, followed by maintenance and then by spare parts. Sellers were the same in each of the experimental cells: they had always an outside option of 1000 euro and full cost and income information.

3.2 Subjects and procedures

Participants were recruited from a graduate management accounting course of a Masters program in business administration at a large West-European university. The course had covered traditional accounting methods, activity-based costing, TCO and supplier selection problems before the experiment took place. The experiment was run in a computer laboratory. Participation required appearing at a given place and time, and was restricted to one session of maximum 1 hour. The opportunity to earn cash, depending on their performance, was the only offered incentive. Participants earned 0.5% of their company's profit (on average 5.74 euro; min = 0 euro; max = 15 euro). In total there were 208 subjects. Participants were randomly assigned to one of the experimental conditions. Procedures were identical for all treatments. Participants were either buyer or supplier.

Buyers and suppliers sat in different rooms so that participants were unable to identify their partner's identity; hence personality effects and collusion were precluded. Participants read the instructions, describing their role position and the nature of the bargaining task, and played the game on their own pace. The seller started the game by making a first offer. Participants could send messages along with their offers and counteroffers if they so desired. The game ended when (i) an agreement was reached, (ii) a player opted for the outside option or (iii) after 10 rounds. In the last case, participants were informed by the computer program that time was running out. This happened only in a few cases (4 out of 104).

3.3 The bargaining task

The bargaining task is based on a negotiation game developed by Kelley (1966) and applied by many other researchers (e.g. Pruitt & Lewis, 1975; Schurr & Ozanne, 1985; Neu, Graham & Gilly, 1988; Campbell et al,

1988; De Dreu & Van Kleef, 2004). The game was adapted to suit a TCO setting. This means that the payoff tables of Kelley's game were replaced by cost tables for the buyers and cost and income tables for the seller. The tables were constructed such that the minimum and maximum profits buyers and sellers could earn were the same (cf. appendix A).

Buyers and sellers had to negotiate a lease contract for a set of machines. The buyer could earn a fixed income (of 6000 euro) by selling end products to an end customer. The instructions explained that maintenance and spare parts were needed to run the machines and to produce an end product. Consequently, the game involved the simultaneous negotiation of price, maintenance, and spare parts. For each of these issues nine different contracts were possible.

Price is an income for the seller, but a cost for the buyer. The price issue was thus distributive in nature. This issue was worth the same for each negotiator, with preferences on the issue going in opposite directions. Consequently, one party's gain was equal to the other party's loss. The task provided, however, an opportunity for the parties to integrate their interests. The buyer had a comparative advantage in taking care of the spare parts and the seller had a comparative advantage in maintaining the machines. Since the issue that was *most valuable* to one party automatically was *less valuable* to the other party, it was possible for participants to trade off issues. Such "logrolling", giving up on less valuable issues to maximize outcomes on the most valuable ones, would yield optimal joint outcomes. Optimal joint outcomes were reached when buyer and seller agreed on contract 5AZ. In this contract, the distributive issue (i.e. price) is set at the middle and the two integrative issues (maintenance and spare parts) are fully traded off. This situation is denoted with an asterisk (*) in appendix A. As cost tables were private, participants had to find out the possibility of a win-win solution through the process of offers and counteroffers and by exchanging information about their interests.

3.4 Dependent variables

3.4 1 Negotiation outcomes

This study focuses on one key negotiation outcome, namely the *individual profit of the buyer*. The individual profit is the amount of money earned by a buyer at the conclusion of negotiations and is measured as the

player's individual profit level associated with final agreement in (the adapted) Kelley's (1966) negotiation simulation. Although not the core of the analysis, the study also briefly discusses the results for the *individual profit of the seller* and the *joint profit* for the dyad.

3.4.2 Negotiation behavior

Negotiation behavior is derived from two sets of measures: a first set is based on interaction analysis and a second set is based on participants' responses to the post-game questionnaire administered immediately following the negotiation exercise.

First, interaction analysis (Putman & Fairhurst, 2001) was used for coding verbal behavior to examine categories and meanings embedded in structural pattern of talk. The classification scheme is based on negotiation communication coding schemes used in prior studies (e.g. Schurr & Ozanne, 1985; Neu et al., 1988; Alexander et al., 1994; De Dreu et al., 1998; Giebels et al., 1998, 2000 & 2003; Boles, Croson & Murnighan, 2000). The classification scheme is included in appendix B. Three judges, who were blind to conditions or hypotheses, coded each negotiation independently. Interrater agreements, expressed in Cohen's Kappa, varied between 0.75 and 0.95. After completing the coding, the coders compared their coding and reconciled disagreements by jointly revisiting the negotiation messages and producing a single set of codes for each subject. Negotiation behavior was determined from analyses of these codes.

Messages sent by participants were coded for (a) integrative behavior, measured as information exchange, and (b) distributive behaviors such as sending threats and issuing warnings. Three independent judges established the participant's information exchange about priorities and numerical values reflecting *integrative behavior*. Based on Neu et al. (1988), information exchange was coded "0" for participants not revealing any information about their cost structure; "1" for participants revealing the relative importance of each of the three to be negotiated issues without revealing any numerical values and "2" for participants revealing the relative importance of each of the three to be negotiated issues and the numerical values of the different contracts. *Distributive behavior* is based on 5 behavior types: general threats, exit threats, warnings, commitment and punishments (Cronbach's alpha = 0.81).

Second, bargaining behavior was also derived from post-bargaining questionnaires. Participants rated their opponent's bargaining strategies on four items. The different items were derived from prior studies (e.g. Campbell et al., 1988) and are listed in appendix B. They measure the overall *problem solving approach* of the buyers as assessed by the seller (Cronbach's alpha = 0.88).

4. Results

4.1 Experimental checks

On completion of the task, participants filled out a post-bargaining questionnaire with five-point scales checking for motivation, task understanding and their usage of cost reports. All of the checks on the experimental inductions (on cost information relevance and power) are statistically significant and have means in the appropriate direction. More powerful buyers judged themselves as more powerful ($F(1,102) = 14.61$, $p < 0.01$) and buyers with TCO information judged the cost information they had more relevant than the buyers with traditional cost information ($F(1,102) = 41.62$, $p < 0.01$). Checks on procedures, including the subject involvement in the task (motivation, fun), their understanding of the instructions and the payoff tables and whether they had enough time to complete the exercise, appropriately showed no differences between conditions ($p > 0.10$). Means indicated that they were highly involved (Mean = 4.33; st.d. = 0.69), that they assessed the exercise as "fun" (Mean = 4.07; st.d. = 0.70), that they understood the instructions (Mean = 4.41; st.d. = 0.77) and the payoff tables (Mean = 4.62; st.d. = 0.51) and that they had enough time to complete the task (Mean = 4.40; st.d. = 0.98). We also checked whether participants in different experimental cells required an equal amount of time to read the instructions and get familiar with the game before actually starting the game. No differences between the experimental conditions were found ($p > 0.10$). Participants needed on average 559 seconds (9.3 minutes) to read the instructions. Analyses revealed neither main nor interaction effects for participant gender on negotiation process or outcomes. Therefore gender was excluded from further analysis.

4.2 Negotiation outcomes

Results[1,2] are reported in Table 1. H1a predicted that buyers with TCO information would obtain a higher individual profit than buyers with more traditional cost information. As expected, buyers with TCO information obtained significantly higher individual profits ($F(1, 100) = 52.90$, $p < 0.01$). As expected in H2a, buyers in an equal power setting obtained higher individual profits ($F(1, 100) = 14.02$, $p < 0.01$), than buyers who were dependent on the seller. The results also yielded a power*cost information interaction ($F(1, 100) = 4.58$, $p < 0.05$). The performance deficit for less powerful buyers actually disappeared when they had TCO information: the individual profits of buyers with TCO information, and with or without an outside option, do not differ significantly (Mean =1148.33 versus Mean =1007.69; $F(1,54) = 2.46$, $p > 0.10$). The performance deficit of less powerful buyers is thus less pronounced when the buyers have detailed TCO information, providing support for hypothesis H3.

<Insert Table 1 here>

Table 1 also reports the results of the analyses on the individual profit of the seller and on joint profit. An ANOVA on *the individual profit of the seller* revealed main effects for power and cost information. Sellers facing less powerful buyers earn higher individual profits ($F(1, 100) = 17.46$, $p < 0.01$). However, sellers' individual profit is lower when they play against buyers with TCO information ($F(1, 100) = 15.80$, $p < 0.01$). *Joint profits* are significantly higher when the buyer possesses TCO information ($F(1, 100) = 15.78$, $p < 0.01$).

These results imply that the high individual profits for buyers with TCO information but without an outside option are not to be explained by the fact that they know "how to fool" the (more powerful) sellers, but by the fact that these dyads realize higher joint profits than dyads in which the buyer has an outside option (mean joint profit = 2446.15 versus mean joint profit = 2336.67). Sellers facing a buyer without an outside option earn more than their less powerful opponent (mean individual profit buyer = 1007.69 versus mean individual power seller = 1438.46), reflecting the power imbalance. These less powerful buyers with TCO

[1] A correlation matrix of all variables included in the study is provided in appendix C.
[2] Analyses were performed for all subjects in the study. However, analyses of the data without including the subjects not reaching agreement yielded the same results.

information are, however, somehow able to earn similar individual profits as buyers with an outside option. In order to explain these negotiation results, we analyze the negotiation behavior of the participants.

4.3 Negotiation behavior

In order to test H1b and H2b, analyses were performed on the negotiation behavior variables. An ANOVA on *information exchange*[3] revealed main effects for cost information ($F(1,100) = 6.14$, $p < 0.05$) and power ($F(1,100) = 4.16$, $p < 0.05$): buyers with TCO information disclosed more information than buyers with traditional information and more powerful buyers disclosed less information than less powerful buyers.

An ANOVA on *distributive behavior* resulted in main effects for cost information ($F(1,100) = 5.77$, $p < 0.05$) and power ($F(1,100) = 14.20$, $p < 0.01$), and in a significant interaction effect ($F(1,100) = 4.89$, $p < 0.05$). The interaction effect is additive, meaning that buyers with TCO information and with an outside option significantly use more distributive bargaining techniques than buyers in the three other experimental conditions.

Negotiation behavior of the buyer was also assessed by the composite measure of *problem solving approach*. Main effects were found for cost information ($F(1,100) = 242.00$, $p < 0.01$) and power ($F(1,100) = 15.85$, $p < 0.01$), as well as an interaction effect ($F(1,100) = 3.44$, $p < 0.10$). Thus, according to the sellers, less powerful buyers use more problem solving techniques than buyers with an outside option and buyers with TCO information make more extensive use of problem solving techniques than buyers with traditional information. Overall these results provide strong support for hypotheses H1b and H2b.

[3] Problem solving behavior was also derived from the messages sent by participants. *Integrative behavior* is based on two measures: the number of rewards and the number of positive normative appeals (Cronbach's alpha = 0.70). Cooperative behavior was also assessed by counting the explicit *requests for cooperation*. However, this latter measure did not load with the rewards and the appeals on one factor and was therefore excluded from the cooperative behavior measure. An analysis on the composite measure of *integrative behavior* revealed a main effect for power ($F(1,100) = 4.13$, $p < 0.05$) and an interaction effect of cost information and power on integrative behavior ($F(1,100) = 5.02$, $p < 0.05$). Less powerful buyers use more integrative bargaining techniques ($F(1,102) = 4.71$, $p < 0.05$) than buyers with an outside option. However, within the group of less powerful buyers, buyers with TCO information made more extensive use of integrative bargaining techniques ($F(1,46) = 3.40$, $p < 0.10$). An ANOVA on the explicit *requests for cooperation* revealed main effects for cost information ($F(1,100) = 10.45$, $p < 0.01$) and power ($F(1,100) = 6.39$, $p < 0.05$), as well as an interaction effect ($F(1,100) = 5.73$, $p < 0.05$). Pairwise comparisons with Tukey tests indicated that buyers with TCO information and no outside option request more frequently for active cooperation than buyers in the three other conditions ($p < 0.01$).

4.4 Test of mediation and moderation

Based on exchange theory, we hypothesized a mediation effect of the negotiation process on the negotiation outcome (H3). More specifically, we expected that the interaction effect of power and cost information could be explained by the negotiation behavior. We hypothesized that negotiation behavior mediates the moderating effect of cost information on individual profit. To test this relationship, we use Baron and Kenny's (1986) framework for combining mediation and moderation. We selected the two most widely used negotiation behaviors to test these relationships, namely integrative (measured as information exchange) and distributive behavior (e.g. Giebels et al., 2000).

First, we consider the effect of information exchange. The analysis proceeds in three steps as shown in Table 2. The first step is a regression of power, cost information and their interaction on the outcome variable (individual profit). The two main effects were significant and the significant interaction effect indicated moderation. In the second step, two equations were estimated. First information exchange is regressed on power, cost information, and their interaction effect power*cost information. Second, individual profit is regressed on power, cost information, their interaction and information exchange. Eventually, in step three, one equation is estimated: individual profit is regressed on power, cost information, power*cost information, information exchange and the interaction term cost information*information exchange. This last equation is identical to the second Step 2 equation, but the cost information*information exchange term has been added. The key question is the extent to which the power*cost information effect on individual profit is reduced in moving from Step 2 to Step 3. Information exchange mediates the moderating effects of cost information on power if the following conditions are met (Baron & Kenny, 1986): (1) power*cost information must have less of an effect on individual profit at Step 3 than at Step 2, and the interaction term cost information*information exchange must affect individual profit and (2) in Step 2 cost information should affect information exchange, which results in power*cost information and cost information*information exchange being correlated. As can been seen in Table 2, all these conditions are met: the interaction effect on individual profit is reduced in Step 3 and has dropped to a non-significant level. This implies that information exchange and not cost information moderates the power to individual profit relation. Hence, information exchange mediates the moderating effects of cost information on power.

< Insert Table 2 here>

The same three-step-procedure is undertaken for problem solving approach (cf. Table 3). The results are very similar to the results obtained in Table 2. Lastly, the three-step procedure is also undertaken for distributive bargaining behavior (cf. Table 4). Again we see that the power*cost information effect on individual profit is reduced in moving from Step 2 to Step 3 (though it does not drop to non significance). This implies that distributive behavior only partially moderates the cost information to individual profit relation.

< Insert Table 3 here>

< Insert Table 4 here>

As a last set of analyses, we test for the overall mediation effects of the negotiation process (cf. Table 5)[4,5]. A hierarchical regression analysis was conducted in which dummy variables representing the manipulations were entered at Step 1 and the proposed sets of mediators were entered at Step 2 (cf. Weingart, Hyder & Prietula, 1996). Results for regression (1) are very similar to the results we obtained with the ANOVA analysis: both main effects and the interaction effect are significant. The R^2 of the model is 0.41 and is highly significant ($p < 0.01$). When the process variables are added to the equation, the interaction effect of power*cost information drops to a non-significant level (coefficient = -233.69, $p > 0.10$). All process variables reach significance. Information exchange has a negative impact on individual profit (coefficient = -467.70, $p < 0.01$). However, the positive and significant interaction effect of cost information*information exchange (coefficient = 700.11, $p < 0.01$) implies that this negative relation between information exchange and individual profit is only true for buyers lacking TCO information. Buyers with TCO information and

[4] The process variables in Table 5 are information exchange and distributive behavior (and their interaction with respectively cost information and power). Replacing the information exchange variable by the problem solving behavior variable yielded the same results.

[5] Finally, also some sensitivity analyses were performed to test the robustness of the results against different ways of measuring negotiation behavior. First, similar results are obtained when information exchange was coded 0 for participants not revealing any information about their cost structure; 1 for participants revealing the relative importance of each of the three to be negotiated issues (with or without the numerical values). Second, participants also rated their own bargaining strategies. The problem solving behavior of the buyer assessed by the buyer is highly correlated with the problem solving behavior of the buyer assessed by the seller (Pearson correlation = 0.41, $p < 0.01$). However, as one of the four items (the item asking whether they were honest or deceptive) assessed by the buyer, did not load with the other items on one factor, the problem solving construct is based on the seller's assessment of the buyer's behavior. Similar results are obtained and conclusions remain the same in case the problem solving approach construct combines the items from *both* the sellers' and the buyers' questionnaires.

exchanging information have a significant higher individual profit. Distributive behavior has a positive effect on individual profit (coefficient = 1188.89, $p < 0.05$), but not for the buyers with power (coefficient = 1181.94, $p < 0.05$). In addition, the R^2 of the model increased significantly from 0.41 to 0.52 (F for change in $R^2 = 5.76$, $p < 0.01$). These results provide support for hypothesis H3, as well as for the exchange model of negotiations.

< Insert Table 5 here>

5. Discussion and conclusion

This paper examined the moderating effect of cost information (TCO information versus traditional information) on a buyer's individual profit when buyer power was high or low. The interaction effect of cost information and power on buyers' individual profit is supported. Our results indicate that the availability of detailed TCO information can alleviate the disadvantage dependent buyers face vis-à-vis a more powerful seller. This result has profound managerial implications. On the one hand, this result implies that less powerful buyers can compensate their power disadvantage by gathering more detailed cost information. On the other hand, powerful buyers do not seem to be able to use this more detailed cost information to enhance their power advantage so as to obtain an even higher individual profit.

We obtained insights into this result by examining the negotiation process. Consistent with exchange theory we expected that buyers with detailed cost information and less power than their opponent try to (re)gain control over their own outcomes by sharing information and by paying close attention to their partners so as to accurately predict their intentions and behaviors. Detailed analyses of the bargaining behavior indeed support this hypothesis. We find that more powerful buyers choose a more distributive and less integrative strategy. These results confirm findings from prior research (Perdue & Summer, 1991; De Dreu et al., 1998). We find also an unexpected positive main effect of cost information on distributive behavior. However, as indicated by the interaction effect of cost information and power on distributive behavior, this main effect can be explained by the fact that specifically the buyers with TCO information and power are prone to use distributive techniques.

From these results we can conclude that the manipulation of power and cost information resulted in buyers using different negotiation techniques or strategies. The less powerful buyers who have access to TCO data will use problem solving behavior, whereas powerful buyers rely on aggressive bargaining techniques. Particularly interesting is, however, that the problem solving strategy of less powerful buyers with TCO information seems to be effective, whereas the aggressive bargaining strategy of more powerful buyers appears to fail. Indeed, we find that the individual profit of these two groups did not significantly differ. These results may be explained by the fact that less powerful buyers are able to create a cooperative and coordinated relationship, in which the seller is willing to consider the objectives of the buyer. When the source gives information about needs and preferences and/or makes concessions generating movement towards a prominent solution, the target is likely to reciprocate (Campbell et al., 1988; Gouldner, 1960). This may explain the higher individual profits for less powerful buyers with TCO information. Less powerful buyers lacking TCO information are not able to communicate the right information and are therefore unable to create this integrative situation. More powerful buyers, on the other hand, have a false feeling of power and choose an aggressive bargaining strategy that, in a tit-for-tat fashion, is responded to by an aggressive bargaining strategy of the seller. The aggressive bargaining strategy of the powerful buyer may not be effective when he is facing a powerful seller.

First support for these conjectures was found in our follow-up analyses, in which we tested whether the moderation effect of cost information on the power to individual profit relation (i.e. interaction effect of power and TCO information) can be explained by the choice of a negotiation strategy. We found indeed that the interaction effect of power and cost information is mediated by the bargaining behavior of the buyer. Furthermore, a limited analysis of the bargaining behavior of the seller (not reported) disclosed the reciprocate nature of his bargaining behavior. An ANOVA on information exchange of the seller revealed a main effect for cost information: sellers facing buyers with TCO information disclosed more information than sellers facing buyers with traditional information. Furthermore, we also found that sellers facing a powerful buyer with TCO information issued more threats and referred more often to their outside option than sellers in the other experimental conditions. Recall that the experimental manipulation for the sellers was the same in each of the experimental conditions: sellers had always an outside option and full cost information. The differences in bargaining behavior of the sellers across the different experimental cells need

thus to be explained as a result of their interaction with the buyers. These findings provide support for our conjecture that less powerful buyers are able to create a cooperative relationship, in which the seller is willing to follow. This resulted not only in higher individual profits, but also in higher joint profits for the dyad.

Our results suggest thus that powerful buyers with refined TCO information may not realize all possible benefits from buyer-supplier interactions due to their bargaining strategy. Their (false) feeling of power causes an increase of distributive bargaining tactics and a reluctance to share the necessary information for inter-firm cost minimization. This implies that powerful buyers may only benefit from more refined accounting information systems if these firms undertake efforts to encourage information sharing and to discourage aggressive bargaining strategies of their employees.

Finally, we present some limitations and further research possibilities. First, while the experimental context induced by a simple negotiation game (Kelley, 1966) allows maintaining control over exogenous variables, the scope for generalizing the conclusions is somewhat limited. Other factors, such as the incentive system, past negotiation history, future negotiations probabilities, etc. have been shown to impact negotiated outcomes but were not manipulated here. Further research is necessary to determine the sensitivity of the results to several experimental parameters included in the current study.

Second, this study did not manipulate the negotiation context for the seller: the sellers faced the same experimental conditions in all four cells. They were always fully informed and powerful. As a consequence, our conclusions do not generalize beyond negotiation settings in which the seller is always at least as powerful as the buyer. Further research can alter the experimental conditions and examine the role of TCO information from both buyer and seller perspectives.

Third, our manipulation of TCO information obviously remained a simplification of reality. In our study, we provided perfect TCO information. In a real business environment, TCO information is not perfect, but characterized by mistakes and simplifications. Further research can examine the effects of imperfect TCO information on the negotiation process.

Fourth, although optimal joint outcomes are introduced, the paper focuses mainly on the outcome of one party. This focus underplays the cost/benefit trade off of obtaining the additional information needed for TCO. It is interesting to consider whether buyers would be willing to incur a cost in order to obtain TCO information if it had been efficient to do so.

Further research is thus needed to unravel the usefulness of accounting information in inter-firm negotiations and to demonstrate how accounting information affects behavior and outcomes.

Appendix A. Experimental cells and corresponding cost tables

	Power	
	No outside option	Outside option
Cost information		
TCO information	Cell 1 (n= 30)	Cell 2 (n= 26)
Traditional cost information	Cell 3 (n= 26)	Cell 4 (n= 22)

Cost table for the seller (in cell 1. 2. 3 and 4)[6]:

Price (=income)		Maintenance		Spare parts	
Contract 1	600	Contract A *	1350	Contract R	2250
Contract 2	1200	Contract B	1200	Contract S	2000
Contract 3	1800	Contract C	1050	Contract T	1750
Contract 4	2400	Contract D	900	Contract U	1500
Contract 5 *	3000	Contract E	750	Contract V	1250
Contract 6	3600	Contract F	600	Contract W	1000
Contract 7	4200	Contract G	450	Contract X	750
Contract 8	4800	Contract H	300	Contract Y	500
Contract 9	5400	Contract I	150	Contract Z *	250

Cost table for the buyer with TCO information (in cell 1 and 2):

Income = 6000					
Price (=cost)		Maintenance		Spare parts	
Contract 1	600	Contract A *	250	Contract R	150
Contract 2	1200	Contract B	500	Contract S	300
Contract 3	1800	Contract C	750	Contract T	450
Contract 4	2400	Contract D	1000	Contract U	600
Contract 5 *	3000	Contract E	1250	Contract V	750
Contract 6	3600	Contract F	1500	Contract W	900
Contract 7	4200	Contract G	1750	Contract X	1050
Contract 8	4800	Contract H	2000	Contract Y	1200
Contract 9	5400	Contract I	2250	Contract Z *	1350

Cost table for the buyer with traditional cost information (in cell 3 and 4):

Income = 6000					
Price (=cost)		Number of maintenance sessions performed by the buyer each month		Spare parts procured by the buyer from a third party each month	
Contract 1	600	Contract A *	1	Contract R	3
Contract 2	1200	Contract B	2	Contract S	6
Contract 3	1800	Contract C	3	Contract T	9
Contract 4	2400	Contract D	4	Contract U	12
Contract 5 *	3000	Contract E	5	Contract V	15
Contract 6	3600	Contract F	6	Contract W	18
Contract 7	4200	Contract G	7	Contract X	21
Contract 8	4800	Contract H	8	Contract Y	24
Contract 9	5400	Contract I	9	Contract Z *	27

[6] The tables were constructed such that the minimum (-3000 Euro) and maximum profits (5000 Euro) buyers and sellers could earn were the same. Optimal joint outcomes were reached when buyer and seller agreed on contract 5AZ. This situation is denoted with an asterisk (*).

Appendix B. Measuring negotiation behavior

B1. Behavioral coding categories

Category	Examples
Information exchange	- Maintenance is more expensive for my company than spare parts. - The contracts for maintenance starts at €250 (=contract A) and increases with €250 until €2250 (= contract I); the contracts for spare parts starts at €150 (=contract R) and increases with €150 until €1350 (= contract Z).
General threats	- Make a concession or you will be in trouble.
Exit threats	- Respond with a concession or I will call another supplier.
Punishment	- This negotiation is going nowhere.
Warnings	- My company has a policy against uncooperative supplier.
Positional commitment	- I refuse to concede any further. - I refuse to drop below my present level.

B2. Buyers' problem solving approach

Observed ratings from sellers' questionnaires
Do you feel that the person with whom you were paired was more interested in solving your mutual problem, or more self-interested? 1 2 3 4 5 Self-interested Solving a mutual problem
Rate your partner's bargaining strategies on the following scales: 1 2 3 4 5 Exploitative Accommodating 1 2 3 4 5 Honest Deceptive 1 2 3 4 5 Information sharing Holding back information

Appendix C. Bivariate correlation matrix (n=104).

		1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	individual profit buyer [a]	1							
2	individual profit seller [b]	-0.71 (**)	1						
3	joint profit [c]	0.54 (**)	0.21 (*)	1					
4	information exchange [d]	0.14	0.19	0.41 (**)	1				
5	distributive behavior [e]	0.22 (*)	-0.20 (*)	0.07	0.09	1			
6	problem solving approach [f]	0.41 (**)	-0.10	0.44 (**)	0.35 (**)	0.09	1		
7	cost information [e]	0.55 (**)	-0.34 (**)	0.36 (**)	0.23 (*)	0.23 (*)	0.82 (**)	1	
8	power [f]	0.27 (**)	-0.35 (**)	-0.04	-0.20 (*)	0.35 (**)	-0.23 (*)	0.00	1

[a] Buyer's individual profit at the end of game (based on the cost table provided in Appendix A).
[b] Seller's individual profit at the end of game (based on the cost table provided in Appendix A).
[c] Joint profit is the sum of buyer's individual profit and seller's individual profit at the end of game.
[d] Information exchange was coded "0" for buyers not revealing any information about their cost structure; "1" for buyers revealing the relative importance of each of the three to be negotiated issues without revealing any numerical values and "2" for buyers revealing the relative importance of each of the three to be negotiated issues.
[e] Coded from the messages sent by buyers (based on the behavioral coding scheme in Appendix B1). Based on five distributive behavior types (general threats, exit threats, positional commitment, punishments, warnings) with Cronbach's alpha = 0.81.
[f] Buyer's problem solving approach based on observed ratings from seller's questionnaire (based on the four items included in Appendix B2) with Cronbach's alpha = 0.88.
[g] Dummy variable, experimentally manipulation: 0 for traditional cost information, 1 for TCO information.
[h] Dummy variable, experimentally manipulation: 0 for buyers with no outside option, 1 for buyers with an outside option.

(*) Correlation is significant at the 0.05 level (2-tailed).
(**) Correlation is significant at the 0.01 level (2-tailed).

References

Alexander, J.F., Schul, P.L., & McCorkle, D.E. (1994). An assessment of selected relationships in a model of the industrial marketing negotiation process. *The Journal of Personal Selling & Sales Management*, 14, 3, 25-39

Bagozzi, R.P. (1978). Marketing as exchange: a theory of transactions in the market place. *The American Behavioral Scientist*, 21, 4, 536-556

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 6, 1173-1182

Bazerman, M.H., Curhan, J.R., Moore, D.A., & Valley, K.L. (2000). Negotiation. *Annual Review of Psychology*, 51, 1, 279-314

Bensaou, M. (1999). Portfolios of buyer-supplier relationships. *Sloan Management Review*, 40, 4, 35-44

Boles, T.L., Croson, R.T.A., & Murnighan, J.K. (2000). Deception and retribution in repeated ultimatum bargaining. *Organizational Behavior and Human Decision Processes*, 83, 2, 235-259

Campbell, N.C.G., Graham, J.L., Jolibert, A., & Meissner, H.G. (1998). Marketing negotiations in France, Germany, the United Kingdom, and the United States. *Journal of Marketing*, 52, 2, 49-62

Carr, L.P., & Ittner, C.D. (1992). Measuring the cost of ownership. *Journal of Cost Management*, 6, 3, 7-13

Carr, A.S., & Pearson, J.N. (1999). Strategically managed buyer-supplier relationships and performance outcomes. *Journal of Operations Management*, 17, 5, 497-519

Chatterjee, K., & Ulvilla, J.W. (1982). Bargaining with Shared Information. *Decision Sciences*, 13, 3, 380-404

Copeland, J.T. (1994). Prophecies of power: motivational implications of social power for behavioral confirmation. *Journal of Personality and Social Psychology*, 67, 2, 264-277

Dant, R.P., & Schul, P.L. (1992). Conflict resolution processes in contractual channels of distribution. *Journal of Marketing*, 56, 1, 38-54

De Dreu, C. K. W. (1995). Coercive power and concession making in bilateral negotiation. *Journal of Conflict Resolution*, 39, 4, 646–670

De Dreu, C.K.W., Giebels, E., & Van De Vliert, E. (1998). Social motives and trust in integrative negotiation: disruptive effects of punitive capability. Journal of Applied Psychology, 83, 3, 407-422

De Dreu, C.K.W., & Van Kleef, G.A. (2004). The influence of power on the information search, impression formation, and demands in negotiation. *Journal of experimental Social Psychology*, 40, 3, 303-319

Degraeve, Z., & Roodhooft, F. (2001). A smarter Way to Buy. Harvard Business Review, 79, 6, 22-23

Dekker, H.C. (2003). Value chain analysis in interfirm relationships: a field study. *Management Accounting Research*, 14, 1, 1-23

Drake, A., & Haka, S. (2005). Does ABC exacerbate the hold-up problem between buyers and suppliers. *American Accounting Association Annual Meeting Proceedings*, 45p.

Druckman, D. (1977). Social-psychological approaches to the study of negotiation. In D. Druckman, *Negotiations: Social-Psychological Perspectives*, *15-44*. Beverley Hills, CA: Sage.

Ellram, L.M. (1995a). Activity based costing and total cost of ownership: a critical linkage. *Journal of Cost Management*, 9, 1, 22-30

Ellram, L.M. (1995b). Total cost of Ownership: an analysis approach for purchasing. *International Journal of Physical Distribution and Logistics*, 25, 8, 4-23

Emerson, R.M. (1962). Power-dependence relations. *American Sociological Review*, 27, 1, 31-41

Erber, R., & Fiske, S.T. (1984). Outcome dependency and attention to inconsistent information. *Journal of Personality and Social Psychology*, 47, 4, 709-726

Fiske, S.T. (1993). Controlling other people: The impact of power on stereotyping. *American Psychologist*, 48, 6, 621-628

Fiske, S.T., & Depret, E. (1996). Control, interdependence, and power: understanding social cognition in its social context. In W. Stroebe & M. Hewstone, *European review of social psychology, vol. 7, 31-61*. Chichester, UK: Wiley.

Gelfand, M., & Christakopoulou, S. (1999). Culture and Negotiation Cognition: Judgment Accuracy and Negotiation Processes in Individualistic and Collectivistic Cultures. *Organizational Behavior and Human Decision Processes*, 79, 3, 248-269

Gergen, K. J. (1969). *The psychology of behavior exchange, vol. 11*, MA: Addison-Wesley.

Giebels, E., De Dreu, C.K.W., & Van de Vliert, E. (1998). The alternative negotiator as the invisible third at the table: the impact of potency information. *International Journal of Conflict Management*, 9, 1, 5-21

Giebels, E., De Dreu, C.K.W., & Van de Vliert, E. (2000). Interdependence in negotiation: effects of exit options and social motive on distributive and integrative negotiation. *European Journal of Social Psychology*, 30, 2, 255-272

Giebels, E., De Dreu, C.K.W., & Van de Vliert, E. (2003). No way out or swallow the bait of two-sided exit options in negotiation: the influence of social motives and interpersonal trust. *Group Processes & Intergroup Relations*, 6, 4, 369-386

Goodwin, S.A., Gubin, A., Fiske, S.T., & Yzerbyt, V.Y. (2000). Power can bias impression processes: stereotyping subordinates by default and by design. *Group Processes and Intergroup Relations*, 3, 3, 227-256

Gouldner, A.W. (1960). The norm of reciprocity: a preliminary statement. *American Socialogical Review*, 25, 2, 161-178

Homans, G.C. (1974). *Social behavior: its elementary forms*, NY: Harcourt, Brace and Jovanovich.

Janda, S, & Sesehardi, S. (2001). The influence of purchasing strategies on performance. *Journal of Business & Industrial Marketing*, 16 4, 300-308

Kelley, H.H. (1966). A classroom study of the dilemmas in interpersonal negotiation. In K. Archibald, *Strategic Interaction and Conflict*, Berkerley, California: Institute of International Studies.

Lax, D., & Sebenius, J.K. (1986). *The manager as negotiator: bargaining for cooperation and competitive gain*. New York: Free Press.

Monczka, R.M., Trent, R., & Handfield, R. (2002). *Purchasing and supply chain management, 2nd ed*. Cincinnati, OH: South-Western College Publishing.

Neu, J., Graham, J.L., & Gilly, M.C. (1988). The influence of gender on behaviors and outcomes in a retail buyer-seller negotiation simulation. *Journal of Retailing*, 64, 4, 427-451

Perdue, B.C., & Summer, J.O. (1991). Purchasing agents' use of negotiation strategies. *Journal of Marketing Research*, 18, 2, 175-189

Pinkley, R. L., Neale, M.A., & Bennett, R.J. (1994). The impact of alternatives to settlement in dyadic negotiation. Organizational Behavior and Human Decision Processes, 57, 1, 97-116

Porter, M.E. (1985). *Competitive Advantage: creating and sustaining superior performance.* New York: The Free Press

Pruitt, D.G., & Carnevale, P.J.D. (1993). *Negotiation in social conflict*. Buckingham, England: Open University Press and Pacific Grove, CA: Brooks/Cole.

Pruitt, D.G., & Lewis, S.A. (1975). Development of integrative solutions in bilateral-negotiation. *Journal of Personality and Social Psychology*, 31, 4, 621-633

Putman, L.L., & Fairhurst, G.T. (2001). Discourse Analysis in Organization. In F. Jablin & L. Putman, *The New Handbook of Organizational Communication*. Thousand Oaks, CA: Sage.

Raiffa, H., (1982). *The Art and Science of Negotiation*. Cambridge, MA: Harvard University Press.

Roodhooft, F., Hiel, G., Van den Abbeele, A. & van Doveren, B. (2003). Optimised sourcing strategies using Total Cost of Ownership. *Cost Management*, 17, 4, 28-35

Roodhooft, F., Van den Abbeele, A. & Peeters, F. (2005). Calculating the total cost of ownership of utilities: a case of inter-firm cost management. *Cost Management*, 19, 5, 13-23

Schurr, P.H., & Ozanne, J.L. (1985). Influence on exchange processes: buyer's preconceptions of a seller's trustworthiness and bargaining toughness. Journal of Consumer Research, 11, 4, 939-953

Shank, J.K. (1989). Strategic cost management: new wine, or just new bottles? *Management Accounting Research*, 1, 47–65

Shank, J.K., & Govindarajan, V. (1992). Strategic cost management: the value chain perspective. *Journal of Management Accounting, Research*, 4, 179-197

Shank, J.K., & Govindarajan, V. (1993). *Strategic Cost Management: the new tool for competitive advantage*. New York: The Free Press.

Thibaut, J.W., & Kelley, H.H. (1959). *The social psychology of groups*. NY: John Wiley & Sons.

Walton, R.E., & McKersie, R.B. (1966). Behavioral Dilemmas in Mixed-Motive Decision Making. *Behavioral Science*, 11, 5, 370-384

Weingart, L.R., Hyder, E.B. & Prietula, M.J. (1996). Knowledge Matters: The Effect of Tactical Descriptions on Negotiation Behavior and Outcome. *Journal of Personality & Social Psychology*, 70, 6, 1204-1217

Wouters, M., Anderson, J.C., & Wynstra, F. (2005). The adoption of total cost of ownership for sourcing decisions - a structural equations analysis. *Accounting, Organizations and Society*, 30, 2, 167-191

Table 1:

Analysis of the negotiation outcome and behavior of the buyer

Panel A: Summary statistics for the negotiation outcomes and behavior of the buyer[a]

	TCO information		traditional cost information	
	outside option	no outside option	outside option	no outside option
individual profit buyer	1148,33	1007,69	698,08	181,81
	(184,99)	(449,59)	(479,06)	(616,74)
individual profit seller	1188.33	1438.46	1421.15	1881.81
	(205.81)	(349.66)	(427.83)	(680.61)
joint profit	2336.67	2446.15	2119.23	2063.64
	(324.29)	(506.15)	(263.85)	(405.38)
information exchange	0.37	0.73	0.23	0.32
	(0.49)	(0.78)	(0.43)	(0.48)
distributive behavior	0.57	0.06	0.18	0.05
	(0.73)	(0.11)	(0.30)	(0.14)
problem solving approach	2.98	3.62	1.47	1.70
	(0.71)	(0.57)	(0.40)	(0.45)

Panel B: ANOVA for the negotiation outcomes and behavior of the buyer[b]

	cost information	power	cost information * power
individual profit	52.90	14.02	4.58
	(***)	(***)	(**)
individual profit seller	15.80	17.46	1.53
	(***)	(***)	
joint profit	15.78	0.13	1.20
	(***)		
information exchange	6.14	4.16	1.56
	(**)	(**)	
distributive behavior	5.77	14.20	4.89
	(**)	(***)	(**)
problem solving approach	242.00	15.85	3.44
	(***)	(***)	(*)

[a] Variable definitions in Appendix C. The cells of the table in Panel A contain, for each of the experimental cells, the means and the (standard deviation) for the variables individual profit, information exchange, integrative behavior, requests for information and distributive behavior.

[b] Panel B presents the results of five ANOVA analyses. The dependent variables are respectively individual profit, information exchange, integrative behavior, requests for cooperation and distributive behavior. Cost information and power are the between-subject factors. Reported are the F-statistics. (***), (**), (*) indicate significance levels of 1%, 5% and 10%.

Table 2:
Three step regression procedure for testing mediation and moderation of information exchange[a]

	Step 1	**Step 2**		**Step 3**
	individual profit	information exchange	individual profit	individual profit
constant	181.82 (*)	0.32 (***)	165.53 (*)	310.99 (***)
cost information	825.87 (***)	0.41 (**)	804.75 (***)	517.27 (***)
power	516.26 (***)	-0.09	520.73 (***)	480.77 (***)
power*cost information	-375.62 (**)	-0.28	-361.45 (**)	-250.73
information exchange			51.19	-405.96 (***)
cost information *information exchange				651.51 (***)
R^2	0.41	0.11	0.41	0.49
F for R^2	(***)	(***)	(***)	(***)

[a] Variable definitions in Appendix C. The table presents the results of four regression analyses. In Step 1, the dependent variable individual profit is regressed on the variables cost information, power and the interaction term power*cost information. In Step 2, first the dependent variable information exchange is regressed on the variables cost information, power and the interaction term power*cost information. Then, the dependent variable individual profit is regressed on the variables cost information, power, the interaction term power*cost information and information exchange. In Step 3, the dependent variable individual profit is regressed on the variables cost information, power, the interaction term power*cost information, information exchange and the interaction term cost information*information exchange. Regression coefficients are reported. (***), (**), (*) indicate significance levels of 1%, 5% and 10%.

Table 3:
Three step regression procedure for testing mediation and moderation of problem solving approach[a]

	Step 1	**Step 2**		**Step 3**
	individual profit	problem solving approach	individual profit	individual profit
constant	181.82 (*)	1.71 (***)	174.60	1012.78 (***)
cost information	825.87 (***)	1.91 (***)	817.78 (***)	-666.23
power	516.26 (***)	-1.45	517.25 (***)	402.48 (***)
power*cost information	-375.62 (**)	-1.85 (*)	-373.89 (**)	-144.73
problem solving approach			4.24	-487.50 (***)
cost information * problem solving approach				670.37 (***)
R^2	0.41	0.72	0.41	0.49
F for R^2	(***)	(***)	(***)	(***)

[a] Variable definitions in Appendix C. The table presents the results of four regression analyses. In Step 1, the dependent variable individual profit is regressed on the variables cost information, power and the interaction term power*cost information. In Step 2, first the dependent variable problem solving approach is regressed on the variables cost information, power and the interaction term power*cost information. Then, the dependent variable individual profit is regressed on the variables cost information, power, the interaction term power*cost information and problem solving approach. In Step 3, the dependent variable individual profit is regressed on the variables cost information, power, the interaction term power*cost information, problem solving approach and the interaction term cost information*problem solving approach. Regression coefficients are reported. (***), (**), (*) indicate significance levels of 1%, 5% and 10%.

Table 4:
Three step regression procedure for testing mediation and moderation of distributive behavior[a]

	Step 1	**Step 2**		**Step 3**
	individual profit	distributive behavior	individual profit	individual profit
constant	181.82 (*)	0.05	179.73 (*)	138.99
cost information	825.87 (***)	0.02	825.13 (***)	810.72 (***)
power	516.26 (***)	0.13	510.21 (***)	557.21 (***)
power*cost information	-375.62 (**)	0.37 (**)	-392.81 (**)	-364.60 (**)
distributive behavior			46.00	942.23 (*)
power *distributive behavior				-931.62 (*)
R^2	0.41	0.21	0.41	0.42
F for R^2	(***)	(***)	(***)	(***)

[a] Variable definitions in Appendix C. The table presents the results of four regression analyses. In Step 1, the dependent variable individual profit is regressed on the variables cost information, power and the interaction term power*cost information. In Step 2, first the dependent variable distributive behavior is regressed on the variables cost information, power and the interaction term power*cost information. Then, the dependent variable individual profit is regressed on the variables cost information, power, the interaction term power*cost information and distributive behavior. In Step 3, the dependent variable individual profit is regressed on the variables cost information, power, the interaction term power*cost information, distributive behavior and the interaction term power*distributive behavior. Regression coefficients are reported. (***), (**), (*) indicate significance levels of 1%, 5% and 10%.

Table 5:
Hierarchical regression results for individual profit of the buyer

	Equation 1: situational characteristics	**Equations 2: situational characteristics and negotiation process**
constant	181.82 (*)	276.58 (***)
cost information	825.87 (***)	488.09 (***)
power	516.26 (***)	528.19 (***)
power*cost information	-375.62 (**)	-233.69
information exchange		-467.67 (***)
cost information*information exchange		700.11 (***)
distributive behavior		1188.89 (**)
power*distributive behavior		-1181.94 (**)
R^2	0.41	0.52
F for R^2	22.66 (***)	14.84 (***)
Change in R^2	0.11	
F for change in R^2	5.76 (***)	

[a] Variable definitions in Appendix C. The table presents the results of two regression analyses. First, the dependent variable individual profit is regressed on the variables cost information, power and the interaction term power*cost information. Second, the dependent variable individual profit is regressed on the variables cost information, power, the interaction term power*cost information, information exchange, the interaction term cost information*information exchange, distributive behavior and the interaction term power*distributive behavior. Regression coefficients are reported. (***), (**), (*) indicate significance levels of 1%, 5% and 10%.